

14. *Some New or Little-known Reptiles and Batrachians from South Africa.*—By JOHN HEWITT.

(With Plates XLIV–XLV.)

OPHIDIA.

*Xenocalamus pernasuta* (Werner).

Beitr. z. K. Land- u. Süßwasserfauna Deutsch-Südwestafrikas. Reptilia and Amphibia. Hamburg, 1915, p. 358.

I have no doubt but that Werner's genus *Micaela* is opisthoglyphous. A specimen from Warmbad, near Sesfontein, in the collection of the South African Museum, has 4 solid maxillary teeth, the first smallest, and 1 larger grooved tooth a little separated from the last solid tooth; palatine teeth absent; lower jaw with about 8 teeth on each side. Body scales in 17 rows; subcaudals 26, ventrals 223. A small supraocular, triangular in shape; a minute postocular in contact with labials 4 and 5. Upper labials 5, the last much the largest, 3 and 4 entering the eye. Nasal completely divided. Rostral flat below. Parietals forming a short median suture which is not so long as the scale immediately behind it: this character affords a ready means of distinction from *bicolor*.

Upper surface of head and body with slaty infuscation; over the neck and body there are indefinite whitish markings forming obscure cross stripes. Upper lip whitish; 4 outer rows of scales along body on each side whitish, like the ventral surfaces. Rostral dark below. Length 510 mm.

This specimen is therefore not so strongly infuscated as the type of *pernasuta*; also, it has more ventral and subcaudal scales. However, there can be no doubt of the close relationship of the two specimens, and the differences are not likely to be of specific importance.

It may be remarked further that *X. mechovii* has been recorded by F. Nieden from Grootfontein. In the number of ventral and subcaudal scales, the specimen above described is more or less intermediate between *mechovii* and *pernasuta*.

Mr. Lawrence's note on the Warmbad specimen is: "Found under a log in a shallow tunnel only a little wider than the animal, and in

which it seemed able to move backwards or forwards with equal ease. It was rather sluggish, and showed no signs of annoyance on being captured. Living colours, light greenish yellow with brownish-purple markings."

## LACERTILIA.

*Mabuia homalocephala smithi* Gray.

Zoology of Southern Africa: Reptilia, by A. Smith, pl. xxxi, fig. 2.

This form, recorded from "arid districts to the north-east of the Cape Colony," is well distinct from that found near Cape Town, and the habits are different. As stated by Smith, it seeks "concealment under rocks and stones, which generally abound in the places to which they resort"; in the neighbourhood of Grahamstown, *smithi* is decidedly a rupicolous form. It thus differs from the Cape Peninsula form which, as I learn from Mr. Rose, is quite common on the sandy flats near Cape Town, occurring along with *Scapteira knoxi*, but is rare on the mountains.

Smith's specimen is known to me from Dordrecht (R. Essex), Grahamstown (J. Hewitt), Pirie (R. Godfrey), and Gleniffer, Kei Road (G. Ranger). In all these specimens there is a very characteristic broad blackish lateral band, quite uninterrupted by spots; this band starts on the lores and extends to the base of the tail or beyond. The dorsal coloration is not so constant: in Pirie specimens there is no distinct dorsal striping, but all the scales are black-edged: specimens from Dordrecht, Gleniffer, and Grahamstown agree with the type in the presence of seven blackish dorsal stripes—three, however, obsolete in the Dordrecht specimen. Besides, there is a conspicuous pale dorso-lateral stripe and a still more conspicuous lateral one—reddish in life—which passes through the ear. Dorsal scales 3-keeled and likewise the scales on upper surface of tail, but on the tail these keels soon become feeble and even near the base are not very strong, the scales being broader than long, with rounded free margins and not mucronate, the tail itself being somewhat depressed basally. The body also is slightly depressed, the dorsal and lateral surfaces being well demarcated through the characteristic colour pattern.

The Cape Peninsula form referred by Boulenger to *homalocephala*, but evidently that described by Gray as *subrufa*, is not depressed either in body or tail. The upper and lateral surfaces are not demarcated in any way. There is no conspicuous dark lateral band and no dorso-lateral pale band, but the upper and lateral surfaces above the reddish lateral streak present four series of irregular dark spots or

blotches on a brown or olive background. Each dark blotch has one or two pale spots near the hind margin, or in the centre, and the blotches sometimes tend to fuse into broad stripes. Otherwise there are no dorsal streaks, nor are the individual scales dark-margined. The tail is rounded, only slightly depressed near the base, where all the superior caudal scales are strongly keeled, more or less hexagonal in shape, and distinctly mucronate; and strong keels persist up to the terminal third of the tail.

The typical form of *homalocephala* is unknown to me. It may be the same as *smithi*, but the original description omits reference to the blackish lateral band which is one of the most characteristic features of *smithi*, and includes a character—*abdomine albido lineis plumbeis picto*—not found in that species.

*Pachydactylus mentalis* sp. nov.

(Plate XLIV, fig. 1.)

*Types*.—Two specimens in the Albany Museum, Grahamstown, collected at Longhope, on the Great Fish river, by Miss D. Cotton.

The species is closely related to *capensis* Smith, which occurs almost throughout the central districts of the Cape and extends far over the high-veld, but is not known from the eastern districts of the Cape Province, where its place is taken by *maculatus* Smith. It is distinguishable at a glance from *capensis* on account of the markings of the dorsal surface, which considerably resemble those of *maculatus*, but are not quite the same. The most conspicuous structural character of the species is, however, the well-defined row of 5 or 6 chin-shields, which, though not large, are well separated in size from the scales succeeding them. Such chin-shields are not known to occur in any other species of the genus.

Other characters are: Head stout, snout rather obtuse and not depressed; behind the chin-shields are small flattened scales which gradually diminish in size towards the throat; naso-rostrals separated by a single fairly large flattened scale; all the scales over the snout and between the orbits are comparatively large and flattened, but on the occiput are some low tubercles; along a straight line from the naso-rostral scale to the small scales immediately adjoining the orbit about 5 larger scales occur; rostral scale a little broader than deep; keeled tubercles on the back fairly well developed, and between them are small, flattened scales; digits short, the terminal portion not expanded or only very faintly so; subdigital lamellae 3, but in addition

is a smaller divided terminal lamella; scales along middle of toes inferiorly not enlarged, except distally, about 9 such scales being present on the middle toe from its base up to the first lamella; tail elongate and tapering, more or less distinctly ringed, some of the larger scales on the upper surface near the base of the tail being slightly keeled.

On each side of the head a curved dark band, starting in front from the nostril and extending back to the occiput, where it nearly meets its fellow. Dorsal surfaces of neck and body with dark blotches; these are arranged somewhat indefinitely, but can be referred to four rows, the two median rows largest, and the blotches of these rows more or less merging on the hinder half of the body. Tail with irregular spots.

Length from snout to vent 36 mm.

The possibility of these specimens being merely hybrids between *capensis* and *maculatus* has been considered. On the colour pattern this might seem not improbable, but some of the structural characters are against such interpretation. In *maculatus* all the head scales are granular, and likewise those of the gular region, the granules nearest the mental scale being smaller than those a little posterior thereto. In *capensis* the scales adjoining the mental and first labial are small and flattish, but a little larger than scales more posteriorly situated: thus, in this respect, *capensis* is intermediate between *maculatus* and the species now described. On the other hand, *capensis* is by no means constant in its characters throughout the wide area of its range; in a specimen from the White River, Eastern Transvaal, the scales on the snout and the gular scales are decidedly smaller than in typical specimens from Kimberley, thus approaching a little towards the *maculatus* condition. This White River specimen is perhaps referable to the form described by Boulenger from the Rustenburg district as *affinis* (Ann. Mag. Nat. Hist., vol. vi, pt. 17, p. 21), from which again I think it will be difficult to distinguish the Zoutpansberg form, *tigrinus*, van Dam (Ann. Transvaal Mus., vol. vii, pt. 4, 1921): I do not know what are the characters of *affinis* in this respect, but in specimens of *tigrinus* from Njelele River the scales adjoining the mental and first labial are finely granular. Probably the distinction of this latter form rests mainly on the naso-rostral character, for in the type of *affinis* the naso-rostrals are said to be separated by a granule. I may add that in young and immature specimens from Njelele the dorsal surfaces are nearly homogeneously scaled, the tubercles being not much bigger than the scales that accompany them, and not raised up, though keeled to some extent.

*Pachydactylus punctatus* subsp. nov. *bicolor*.

(Plate XLIV, fig. 4.)

*Types*.—Two specimens in the collection of the South African Museum (No. 17297), collected at Kaross, in the Kaokoveld, S.W.A., by Mr. R. F. Lawrence. These specimens are possibly immature and their characters a little uncertain, but the very striking colour pattern seems to warrant a distinctive name for the form, especially as there are minor structural peculiarities—the number of labials, etc.

The characters are as follows: Nasorostrals in contact, nostril well separated from rostral and first labial, rostral twice as broad as high, 8 upper labials, 7 quite distinct lower labials, snout scarcely more than  $1\frac{1}{2}$  times as long as the eye; scales on the snout twice as large as those on occiput; a swelling above the loreal region on each side of the snout; symphysial shield nearly twice as long as broad; ventral scales larger than the dorsals; a circular area just in front of the vent with considerably enlarged scales, which are separated by much smaller scales from the strip of enlarged scales under each thigh; dorsal scales not very strongly flattened; distal expansion of digits with 5 adhesive lamellae, the most distal lamella smallest and divided in the middle; scales along the middle of the digit inferiorly all transversely enlarged.

*Colour*.—Head above greyish white, with some dark mottlings, and surrounded by an elliptical blackish stripe which arises at the nostril and passes backwards through the eye on each side and around the back of the occiput; this stripe is bordered behind by a white stripe arising on the upper lip and broadening a little over the neck; forelimbs and greater portion of dorsal surface of body quite black, but changing suddenly to greyish white over the lumbar region; a dark transverse patch or band between the hind-limbs dorsally; hind-limbs and base of tail greyish white, the tail with faint dark cross stripes.

Length from snout to vent 25 mm.; tail imperfect.

Mr. Lawrence informs me that he noticed this gecko at other localities (Warmbad and Caimaeis), and that all specimens seen were similar in colour and size to those above described. They were found under logs or amongst decaying leaves.

Dr. Werner has given some notes on the coloration of the young of the related species, *brunnthaleri*, from which it is evident that the form now described cannot be referred to that species. It is, however, possible that fully adult specimens may be differently marked from

the types: that such is the case in *purcelli* was pointed out by Methuen and myself in Annals Transvaal Museum, vol. iv, p. 132, fig. 15, 1913. *P. serval* Wern., from Chamis in Great Namaqualand, seems to differ in the higher rostral and the greater number of subdigital lamellae (6), as well as in coloration, but the characters of immature specimens are unknown.

Lastly, *P. pardus* Sternf., from Warmbad, the only other western species of this group, differs in the greater number of labial shields (10-11 and 9) and in the rostral entering the nostril. Although the type locality is not more fully indicated, I presume that the particular Warmbad is that in the south of Great Namaqualand.

*Pachydactylus punctatus brunnthaleri* Wern.

Three specimens from Narebis, 40 kilos. west of Otjiwarongo. I do not hesitate to refer these specimens to the same species as that found at Serowe and near Bulawayo, although the eye is a trifle larger. Werner himself has recorded *brunnthaleri* from Grootfontein and Okahandja. I believe that this form is best regarded as a long-snouted subspecies of *punctatus* Ptrs.

*Lygodactylus lawrencei* sp. nov.

*Type*.—A single specimen in the collection of the South African Museum (No. 17289), collected at Otjitambi, Kaokoveld, S.W.A. This species is perhaps related to *L. ocellatus* Roux, which is fairly common in the Eastern Transvaal. In both the mental scute is entire.

*L. lawrencei* has the following characters: Three well-developed pairs of subdigital lamellae, and a smaller fourth pair distal thereto; snout rather stout and broadly rounded, the canthus rostralis quite lacking (in *ocellatus* it is pointed); supraorbital region well raised; nostril well separated from rostral, the scales surrounding the nostril all comparatively small, comprising 3 nasals and the first labial, which is much smaller than the second labial (larger than the second labial in *ocellatus*); anterior nasals separated by two scales; rostral hardly  $1\frac{1}{2}$  times as broad as deep (at least twice as broad as deep in *ocellatus*); mental not so large as in *ocellatus*, and in contact posteriorly with two scales, which, like the scales adjoining them laterally, are only a little larger than the scales immediately posterior to them, and in diameter are only about twice that of the smallest scales on the throat (in *ocellatus* diameter of a chin-shield is quite four times that of a small scale on the throat); a single pair of rather large preanal pores.

Tail with only base remaining, but apparently none of the inferior caudal scales are much larger than the rest.

*Colour.*—Dorsal surfaces ashy grey with a number of thin blackish streaks, most of which are more or less broken up. The best developed is one which starts from the eye and passes backwards well above the ear-opening, gradually thickening towards the shoulder, where it ends abruptly; another blackish streak arises from the eye a little superiorly, and passes backwards without thickening along the dorsolateral region of the body. Another thin streak arises from the gape, passes backwards through the eye-opening to the base of the fore-limb; another streak arises along the mid-line of the occiput and over the neck bifurcates, the two continuing along the length of the body in broken condition. A thin V-shaped streak across the head between the orbits anteriorly. A streak from the nostril to the eye. Two V-shaped streaks on the throat, and a streak along the lower lip on each side which is continued backwards to a point below and slightly beyond the ear-opening. There are infuscated patches also on ventral surfaces of thighs, and in front of the anus around the preanal pores, but the pore-bearing scales are whitish and thus at once visible to the naked eye.

Length from snout to vent 26.5 mm.

*Eremias namaquensis* subsp. nov. *quadrangularis*.

*Type.*—A specimen from Kalkfontein (South), S.W.A., in the South African Museum (No. 16128), collected by Mr. J. S. Brown. It is characterised by a long slender snout; dorsal surfaces with 5 continuous white stripes, the central one bifurcating on the nape, and posteriorly passing into the median pale area over the base of the tail; this mid-dorsal stripe is a trifle broader than the stripe on each side of it, from which it is only narrowly separated; interparietal shield 4-sided, broad in front, nearly as broad as the frontal, its anterior angle obtuse; parietals in short contact; prefrontals in contact. Length from snout to vent 50 mm., length of head 10.4 mm.

Two other specimens from Warmbad, near Sesfontein, are similar, but the dorsal stripes are lacking; in one of them, the prefrontals are separated by a small azygos scale which is longer than broad; in the other, the parietals are separated; in both, the interparietal is broad in front, narrowing greatly behind.

The same form is also known to me from the Kalahari-Kyky and Lower Molopo north of Zwart Modder (Miss M. Wilman). In these specimens, the prefrontals may be separated or in contact; the parietals

are usually separated ; but the interparietal seems distinctive, being very broad in front and narrow behind, the anterior width being not much less than that of the frontals.

The typical form of *namaquensis*, as inferred from the descriptions of Smith and Boulenger, has four white stripes down the back, the interparietal is not nearly so broad as the frontal, and its anterior angle is generally less than a right angle, the parietals are not in contact, the prefrontals are separated by an azygos scale, and the snout is not so strongly pointed as in the form just described. The V-shaped anterior portion of the mid-dorsal stripe is present immediately behind the head, and in young specimens a trace of it may continue along the back.

In a baby specimen from De Aar, both prefrontals and parietals form median sutures : another juvenile specimen (16146 S.A.M.) has the prefrontals in contact.

This typical form is known to me from Graaff Reinet, Victoria West, Middleburg C.P., Beaufort West, Hanover, and Cradock. The Cradock specimen is peculiar in possessing 5 pale dorsal stripes, the middle one a trifle narrower than its neighbours ; the head-scaling is quite typical, however.

According to Boulenger, another western form to be included under *namaquensis* is *breviceps* Sternf. from Walfish Bay (Mit. a.d. Zool. Mus. Berlin, vol. v, p. 404, 1911) : this form is only known to me from Sternfeld's description, which seems to indicate a distinct species if only on the characters of the tympanic scale. It is in any case well distinct from the form now described.

#### *Eremias burchelli* D.B.

In distinguishing this species from its ally *E. capensis*, the following characters seem to me of importance : Snout comparatively elongated, frontonasal separated from rostral or occasionally only just touching the rostral, this frontonasal scute being always broader than long, whereas in *capensis* it is as long as broad or even longer than broad ; four pairs of chin-shields ; back with granular scales of uniform size. It is a common species on the Zuurberg Mountains near Grahamstown, and is also known to me from mountains or mountainous regions near Indwe, Dordrecht, Queenstown, Majuba Nek (Herschel district), and Maclear. Our material agrees sufficiently well with Smith's figure and description, although his specimens were said to come from "Karoo flats on the south-west coast of Africa, particularly Little Namaqualand." I think there must be a mistake in this locality

record, for it seems very unlikely that the same form can occur both on the eastern mountains and on the flats of Namaqualand. Smith's figure almost exactly matches an adult male from Queenstown recently collected by Mr. R. Essex; a male from Maclear is similar, but the two lateral thin white stripes are obsolete except in the neck region.

The dark markings of the upper surfaces are referable to 6 longitudinal series, the median pair being very narrow; there is also the commencement of a seventh blackish stripe immediately behind the occiput mesially, and a ventral dark stripe on each side below the lower white stripe. In adults these stripes and bands more or less break up, especially in the males; but in juveniles they are all very distinct and the coloration pattern presents 7 thin white stripes on a blackish background, the median white stripe bifurcating on the nape and fading somewhat on the hinder part of the back, whilst the stripes on either side of it remain as widely separated from each other as from the dorsolateral stripes. In adults the dark pigmentation may disappear over the mesial region of the back, and sometimes, as in a female from Queenstown, the upper surfaces are quite devoid of black; in this specimen the colour above is uniformly dull brown with 5 very faint thin pale streaks, the middle one, though much broken up, extending the whole length of the body and bifurcating on the nape, whilst along the flanks is a continuous and conspicuous thin white streak which commences below the eye and extends to the hind-limb, the under-surface of the tail tinged with pink. In all specimens from the eastern districts of the Cape the two median black stripes, when present, remain separate from each other throughout the length of the back, or they may fuse above the pelvic region. Two immature specimens from Nemahedi Camp, Basutoland (J. Cottrell) can also be referred to the Eastern subspecies.

There is a distinct form of this species in the Western Province of the Cape which I now describe as *Eremias burchelli quinque-vittata* subsp. nov. (Plate XLV, figs. 1, 2, and 4.)

*Type*.—A single sub-adult female specimen in the South African Museum, Cape Town (No. 14342), collected on the Matroosberg by the late R. M. Lightfoot.

The chief distinguishing feature lies in the two black mid-dorsal stripes which are not parallel over any part of their length, but gradually converge until they meet just behind the shoulders; the single stripe then continues unbroken to the base of the tail, where it ends

abruptly. The other two bands on each side are well defined, but contain numerous white spots which tend to fuse together, so that each band has a white centre much broken up, and black margins. The two lateral white stripes on each side are well developed throughout their length, the more dorsal one extending backwards well on to the tail. Thus, over the middle of the back, the dorsal and lateral surfaces present 6 white streaks, the two middle ones rather near together, as they are throughout the hinder half of the body. Limbs with conspicuous white spots above. About 63 scales across the middle of the body. These are all flat and not quite uniform, for those over the white stripes are slightly but distinctly larger than the adjoining scales; on the back, the largest scales are those over the dorsolateral white stripes. Only three scales in a line between loreal and first supraocular. Four pairs of chin-shields. Ventral plates in 14 longitudinal series.

*Measurements.*—Snout to vent 54 mm., fore-limb 20 mm., hind-limb 32 mm., snout to tympanum 12.5 mm., breadth of head 9 mm.

An adult male (Plate XLV, fig. 4) of larger size from the same locality is coloured as follows: Dorsal surfaces grey with irregular blackish markings on the back, the most conspicuous of which border the dorsolateral pale streak; over the neck are 5 inconspicuous thin pale streaks all black-margined; the median one is very short, ending on the neck; the next pair, also rather short, converge throughout their length, but end abruptly without actually fusing just behind the shoulders; the dorsolateral streak on each side persists throughout the length of the body and extends a short distance along the tail. Faint traces of a pale lateral streak also occur.

Limbs with black and white ocelli. Five pairs of chin-shields. Femoral pores 15. Length from snout to vent 58 mm.; length of tail 117 mm. Scales all of uniform size on the back; about 64 in a transverse line across the middle.

A young male (Plate XLV, fig. 1) has 5 white streaks on a blackish background dorsally; the median streak ends just behind the shoulders; the next pair converge very gradually, running close together for some distance and ultimately fusing just above the pelvic region; the dorsolateral pair continue well into the tail. The black bands adjoining the dorsolateral white streak on both sides contain numerous small white spots. A white lateral streak is also present. Limbs conspicuously spotted with white.

The colour pattern of this specimen is uncommonly like that of juvenile *capensis* from Victoria West. In all three specimens the

anterior supraocular is large, being almost as long as broad, and the scales between it and the loreal not broken up into small granules as in typical *burchelli* or *capensis*. The prefrontals in the adult male form a moderately long suture: in the female, they are separated by a small azygos shield; in the young male, the frontal and frontonasal are just in contact.

*Lacerta australis* sp. nov.

(Plate XLV, fig. 3.)

*Type*.—A single specimen collected on the Matroosberg by the late R. M. Lightfoot: No. 14741 in coll. South African Museum.

Head somewhat depressed, body scarcely so. Depth of head slightly exceeding the distance from end of snout to anterior border of eye. Occipital region flat; snout pointed, but shorter than postocular part of head; length of pileus very slightly exceeding twice the width. Neck as broad as head. Adpressed hind-limb reaching the collar. Foot about as long as head. Nostril pierced between the nasal and postnasal, and scarcely separated from first labial; on the left side there are two incomplete postnasals. Nasals forming a suture behind the rostral; frontonasal broader than long; frontal about as long as its distance from the end of the snout, broader in front, about  $1\frac{2}{3}$  times as long as broad, posteriorly decidedly narrower than the supraoculars, the two long sides almost straight; parietals about  $1\frac{1}{2}$  times as long as broad, outer border for the most part straight, in front forming a good contact with the small fourth supraocular but not meeting any of the small postoculars. First supraocular smallest, not in contact with the frontal. Of the two major supraoculars the first is longer; 6 supraciliaries, the suture between first and second oblique; a series of 9 granules between supraoculars and supraciliaries. No foramen in the interparietal. Occipital broader than the interparietal, and hardly more than  $\frac{1}{3}$  as long. Rostral not entering the nostril. Two loreals, first shorter than second. Four upper labials anterior to the subocular, the lower border of which is considerably shorter than the upper. Lower eyelid pigmented over an extensive area, and some of the scales thereon more or less vertically enlarged, but irregularly so. Temple covered with granular scales similar to the dorsals; an elongated upper temporal scale followed by three smaller ones; an elongated tympanic scale; 5 or 6 postocular scales, the largest being that adjoining the subocular; no masseteric shield. Ear-opening large. No pterygoid teeth. Collar even-edged, composed of 8 plates, in contact

with which is a row of about 6 enlarged scales ; from this row to the symphysis of the chin-shields a straight line includes about 30 scales ; a gular fold present.

Dorsal scales all granular and smooth like the laterals, about 68 mm. across the middle of the body. Ventral plates with rectilinear border, feebly imbricate, in 6 longitudinal series, the second series on each side from the median line a little broader than the outer series, especially anteriorly, the median series narrowest ; 28 transverse series are present, counting from the row of obliquely elongated scales just behind the collar.

A large preanal plate, in front of which are several other enlarged scales of smaller size ; two of these mesially situated are larger than their fellows, so that the condition might be described as a longitudinal series of 3 preanal scales, the hindermost largest. Scales on upper surface of hind-limb all granular, but along the anterior surface of the thigh is a row of about 7 much enlarged and vertically elongate scales which are quite smooth ; adjoining these above and below are scales of smaller size. Fore-limb with enlarged smooth scales on upper and anterior surface of humerus. Strongly enlarged scales also occur on anterior surface of fore-arm, and on ventral surface of leg ; small scales considerably larger than the dorsal granular scales occur on ventral surface of thigh anterior to the line of femoral pores. Otherwise, the scaling of the limbs resembles that of the dorsal surface.

16-19 femoral pores on each side.

Under the fourth toe about 23 scales.

Tail with enlarged scales ; dorsally, near the base of the tail, these are all long, narrow, and smooth or faintly keeled, but more distally they become definitely keeled ; this is also the case ventrally, but the keeling is more pronounced and the posterior border of each keeled scale is pointed, though not acutely so, and the broader smooth scales near the base of the tail have quite straight posterior borders. The caudal whorls are, on the whole, uniform in length ; near the base of the tail the scales become gradually shorter, the dorsal ones merging into those of the back.

*Colour* (preserved specimen).—Dorsal and lateral surfaces of body and limbs blackish, with numerous regularly arranged small pale-green spots ; upper surface of head freckled with pale green ; temporal region with indication of vertical pale-green stripes ; tail obscurely spotted. Lower surfaces blue-green ; upper and lower lips, chin-shields, and throat pale green with small black spots. The spots of the dorsal surface are more or less in longitudinal lines, and over the

neck and shoulders those mesially situated form a thin broken median streak.

Length from snout to vent 41 mm., length of head 10 mm., width of head 6.5 mm., depth of head 5 mm., length of fore-limb 13 mm., of hind-limb 22 mm.

This species can be arranged in the *Podarcis* group as defined by Boulenger, and is apparently related to *danfordi* of Asia Minor and Greece. It resembles the three other African species in the absence of the parietal foramen, but is at once distinguished by the small size and greater number of the dorsal scales; these three species differ so much from each other that Boulenger referred them to three distinct sections of the genus. In the future revision of the genus it is probable that the African species will be recognised as belonging to one natural group.

*L. australis* seems to be the first record of this genus as endemic south of the tropic of Capricorn. The other African species are only known from the equatorial region. There is, however, a record of *L. dugesii* from Table Mountain (R. Sternfeld in Mit. a. d. Zool. Mus. Berlin, vol. v, p. 403, 1911); but this was suspected to be an accidental importation from Madeira.

*Tropidosaura montana* subsp. nov. *rangeri*.

(Plate XLIV, fig. 3.)

*Type*.—A single adult male example in the collection of the Albany Museum, taken on the farm Gleniffer, near Kei Road, by Mr. Gordon Ranger, November 1925. The habitat is grass-yeild.

It closely resembles the typical form of *montana* in the head-scaling, but differs as follows: Frontal scute 5-sided, the posterior transverse edge being only slightly curved; interparietal 4-sided, broad in front,  $1\frac{1}{2}$  times as long as broad; occipital of moderate size, quite half as long as the interparietal. In *montana* the frontal is 6-sided, interparietal 5-sided and elongated, occipital small, not half as long as the interparietal.

*Colour*.—Fore-part of head blackish, parietal scutes brown, dorsal surface of body brown with faint traces of darker mid-dorsal stripe. A continuous and conspicuous cream-coloured dorsolateral stripe arising immediately behind the head, flanks blackish, divided by a second cream-coloured stripe, which arises on the upper lip just below the eye, is broken in the axillary region, and not sharply defined on the flanks; a conspicuous ventrolateral stripe of orange spots on

each side of the body; ventral scales creamy white with blackish edges, mental region blackish.

From snout to vent 50 mm., tail 113 mm.

*Rangeri* may be considered a brachycephalic form of *montana*; geographically it is the extreme eastern form. In the matter of altitude there is nothing to distinguish them, for *montana* has a great altitudinal range. I have recently taken it on low hills near the sea at Hamburg, C.P.

#### BATRACHIA.

##### *Bufo tradouwi* sp. nov.

*Types*.—A series of specimens in the collection of the South African Museum, taken on the Swellenden Mountains and in Tradouw Pass at 3500–5500 feet altitude by Dr. K. H. Barnard, 1925.

This species is closely related to *B. rosei*, differing therefrom chiefly in the presence of a well-developed tympanum, which, even in juvenile specimens, is quite distinct; it is also larger than *rosei*.

Toes long, not distinctly pointed, without web at the base and without lateral fringe; subarticular tubercles moderate, more distal ones on two longer toes double, or with indication of doubling; metatarsal tubercles not strongly developed. No tarsal fold; tarsal region with several weak tubercles. First and second fingers subequal. Tympanum well developed, about  $\frac{2}{3}$  the diameter of the eye. Parotoids generally prominent, tapering in front and behind, with comparatively few and large pores; also along the dorsolateral white stripe are one or two much smaller parotoid-like skin glands near the lumbar region, but these are sometimes ill-developed; further, just behind the angle of the mouth, is a parotoid-like skin-gland. Dorsal surface of body with numerous rather small, mostly rounded, smooth warts; these extend to the head, but are absent over the snout. No asperities except occasionally in the coccygeal region. A few smooth warts on outer side of hind-limb. Vertebral line distinct or otherwise; absent over the head. Abdomen smooth or nearly so. Hind-limb pressed forward; the tarso-metatarsal joint reaches the middle of the eye, or to front of orbit in smaller specimens.

*Colour*.—Dorsally blackish or dark brown, with 3 conspicuous pale stripes. The lateral stripes commence at the parotoids and extend back to the inguinal region; the median stripe commences on a level with the anterior margin of the orbits. Parotoids generally with reddish tinge, which also characterises the small glands more posteriorly situated. Ventrolateral region and upper lip with black and

grey reticulation. Ventral surfaces whitish with fine blackish reticulation over the belly; this, however, is variable.

Length from snout to vent 31.5 mm.; breadth of head 11 mm.

I have also a single specimen of this same species from George Mountain (Mr. J. E. H. Mylne).

This species agrees with *rosei* in that the parotoids are situated on the sides of the neck rather than on the upper surface, as in *angusticeps*; thus, these glands are somewhat laterally compressed rather than depressed.

*Key to S. African species of Bufo, group angusticeps Smith.*

1. Toes pointed, generally well webbed at the base and narrowly fringed with web almost up to the tip (sometimes fringe along toes obsolete); parotoids elongated; belly smooth. [Coastal region from Cape Town to Mossel Bay.] *angusticeps* Smith.
2. A more slender form; toes longer, not so well pointed, webbed at the base, but less distinctly fringed with web; tubercles under digits and on soles not strongly developed; tarsal fold present though ill-developed. [Amatola Mountains] *amatolica* Hewitt.
3. Toes not pointed, only slightly webbed at the base, and not or scarcely fringed with web; tubercles on soles and tarsi all well developed, and likewise also the tarsal fold; parotoids usually broad. (Young considerably resembling *amatolica*, but distinguishable on the webbing of the feet and in the stronger development of the foot tubercles; in smaller specimens, subarticular tubercles may be entirely single as in *amatolica*, but in half-grown examples some of the tubercles are doubled; chest with numerous irregular black spots and sometimes a few on the throat.) [Occurs in all the central districts of the Cape Province from Steinkopf to Queenstown.] *gariepensis* Smith.
4. Toes long, not webbed; foot tubercles not strongly developed, and no tarsal fold, some of subarticular tubercles double or with indication of doubling; parotoids pointed behind and in front; surfaces generally free from asperities. [Swellendam Mountains and George.] *tradouwi* sp. nov.
5. Similar to *tradouwi*, but tympanum quite absent. [Muizenberg.] *rosei* Hewitt.

*Bufo dombensis* Boc.

Three specimens from Outjo and Sesfontein. These are much smoother dorsally than either *vertebralis* or *fenoulheti*. One specimen is quite free from dorsal asperities; in two of them there are scattered asperities over the back, but in all the head is entirely smooth above.

There is a continuous vertebral line. Parotoids flattened, in one example divided almost as in *vertebralis*.

Length 36 mm.

*Phrynomantis nasuta* Hewitt and Methuen.

Two specimens from Outjo: "Found lying in little round hollows in the sand beneath stones."

These agree in most respects with the type and only known specimen from the Great Karas Mountains, but there are minor differences. Tympanum rather indistinct. Fingers slightly more dilated at the tips. Throat more or less infuscated. The markings over the middle of the back take the form of two irregular ocelli instead of two irregular longitudinal bands. Inner metatarsal tubercle fairly prominent but not shovel-shaped. Total length 33.5 mm.

The relationship of this species to *annectans* Wern. must remain doubtful until adult topotypes of the latter become available.

*Cassina wealii* Blgr.

Brit. Mus. Cat. Batrachia, p. 131, pl. xi, fig. 7, 1882.

Mr. G. A. Ranger has recently sent to me three specimens from Gleniffer, Kei Road, which agree well with Boulenger's description. All recent authors, including Boulenger himself, have regarded this species as a synonym of *senegalensis* D.B., and Noble, who has examined a large series of *Cassinias*, remarks: "I can find no distinguishing character of *wealii* which is not present in our series of *senegalensis*, and I have not hesitated in uniting these two species. . . . I have compared a specimen of *senegalensis* from Cape Colony with our large series from Niangara and can find no differences of any kind."

The following characters seem to warrant specific recognition for *wealii*: Belly entirely granular—in *senegalensis* only the hinder portion is granular; adult male with a round or transversely oval prominent disc on the throat, well defined posteriorly as well as laterally, and with no regular plaits on the throat—in *senegalensis* the disc is longitudinally elongate, its posterior margin is ill-defined, and behind it the throat is strongly and regularly plaited; outer metatarsal tubercle rather large but flattened and not sharply defined—in *senegalensis* very small but well defined.

*C. wealii* is known to me from Gleniffer, near Kei Road, and from Grahamstown, where also *senegalensis* occurs. The local distribution of the two species near Grahamstown has not been worked out, but

it is known that *senegalensis* inhabits the drier open flats above the town, whilst *wealii* has been taken on the humid mountain slopes south of Grahamstown near Stones' Hill.

*C. senegalensis* is known to me from Grahamstown, Mariannhill, Natal, Port St. Johns (N. Gould), Zululand (H. W. Bell Marley), Matoppos (J. Cockcroft). The Grahamstown form is possibly worthy of separation as a distinct subspecies, for the ventral surfaces are less strongly granulated than in the other specimens examined; it is moreover larger in body.

## EXPLANATION OF PLATES.

## PLATE XLIV.

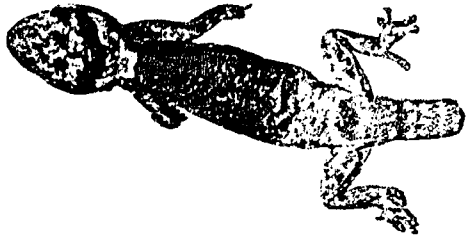
FIG.

1. *Pachydactylus mentalis* sp. nov. Type specimen a little enlarged.
2. *Tropidosaura montana*. Head and neck of specimen from George, C.P., enlarged.
3. *Tropidosaura montana rangeri* subsp. nov. Head and neck of type, enlarged.
4. *Pachydactylus punctatus bicolor* subsp. nov. Type specimen, a little enlarged.

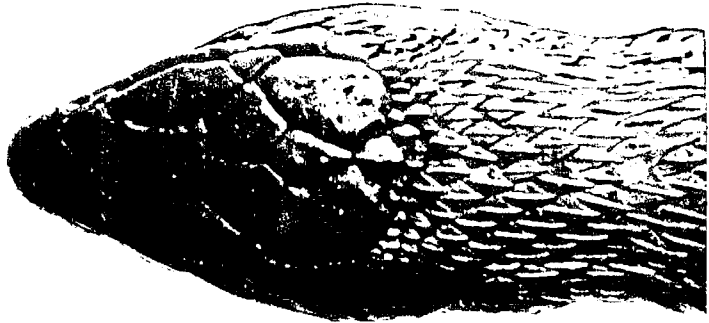
## PLATE XLV.

1. *Eremias burchelli quinquevittata* subsp. nov. Young male, enlarged.
2. " " " subsp. nov. Type, female.
3. *Lacerta australis* sp. nov. Type specimen, enlarged.
4. *Eremias burchelli quinquevittata* subsp. nov. Adult male, enlarged.

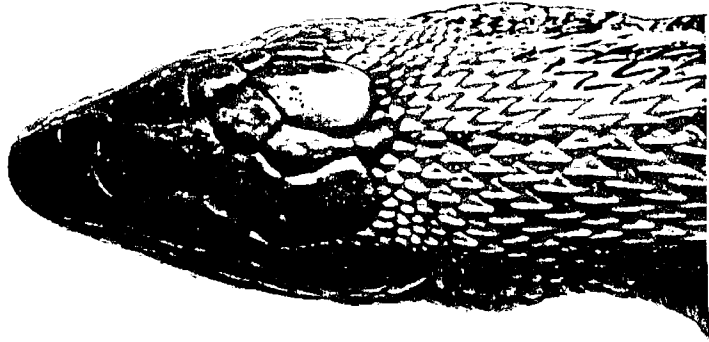
4



3



2



1



SOUTH AFRICAN LACERTILIA.